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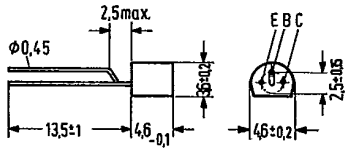
PNP Silicon Planar Transistor **BF 939**

BF 939 is a PNP silicon RF planar transistor in TO 92 plastic package (DIN 41868). The transistor is particularly suitable for controllable VHF input stages in TV tuners.

Type	Ordering code
BF 939	Q62702-F 528



Approx. weight 0.25 g Dimensions in mm

Maximum ratings

Collector-emitter voltage	$-V_{CEO}$	30	V
Collector-base voltage	$-V_{CBO}$	30	V
Base-emitter voltage	$-V_{EBO}$	3	V
Collector current	$-I_C$	20	mA
Base current	$-I_B$	2	mA
Storage temperature range	T_{stg}	–55 to +150	°C
Junction temperature	T_j	150	°C
Total power dissipation (T_{amb} = 60°C)	P_{tot}	350	mW

Thermal resistance

Juncition to ambient air	R_{thJA}	<500	K/W

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Static characteristics (T_{amb} = 25 °C)			
($-V_{CE}$ = 20 V; $-V_{BE}$ = 0)	$-I_{CES}$	<100	nA
DC current gain			
($-I_C$ = 2 mA; $-V_{CE}$ = 10 V)	h_{FE}	50 (>30)	–
($-I_C$ = 7 mA; $-V_{CE}$ = 5 V)	h_{FE}	(>10)	–
Dynamic characteristics (T_{amb} = 25 °C)			
Transition frequency			
($-I_C$ = 2 mA; $-V_{CE}$ = 10 V; f = 100 MHz)	f_T	750	MHz
Reverse transfer capacitance			
($-I_C$ = 1 mA; $-V_{CE}$ = 10 V)	C_{12e}	0.63	pF
Noise figure			
($-I_C$ = 2 mA; $-V_{CE}$ = 10 V;			
f = 200 MHz; R_g = 60 Ω)	NF	3	dB
Power gain			
($-I_C$ = 2 mA; $-V_{CE}$ = 10 V; f = 200 MHz;			
R_L = 1 kΩ; R_g = 60 Ω)	G_{pb}	16	dB
Control range of power gain			
($-V_{CC}$ = 12 V; R_{cc} = 1 kΩ; f = 200 MHz;			
$I_C \leq$ 9 mA)	G_{pb}	>35	dB
Min. interference voltage [1]			
(f = 200 MHz; $-I_C$ = 2 mA)	$V_{int\ 1\%}$	12	mV

1) $V_{int\ 1\%}$ is the rms value of half the EMF of a 100% sine modulated TV carrier with R_g = 75 Ω, which causes 1% AM on the useful carrier.